

Claims

What is claimed is:

1. A filter apparatus for use in liquid chromatography systems, said filter apparatus comprising:

5 (a) a connection means having an open channel formed therethrough, which channel is configured to operably and sealingly receive fluid transfer tubing in at least a first end thereof;

10 (b) a filtering means comprising a mesh element of between about 0.01 and about 1.0 mm in thickness, and having a plurality of apertures disposed therein, such apertures being between about 0.2 and about 30 micrometers in mean diameter; and

15 (c) a securement means configured to matingly and sealingly engage with said connection means such that said filtering means is operably disposed and secured between said connection means and said securement means adjacent to and superimposed over a second open end of said channel, said filter apparatus being adapted to operably filter 20 chromatographic fluids being drawn through said channel from said second open end and into the fluid transfer tubing.

2. A filter apparatus as in Claim 1 wherein said filtering means is fabricated from PEEK, PPS, or stainless steel.

25 3. A filter apparatus as in Claim 2 wherein said mesh element is formed by weaving PEEK monofilaments together.

4. A filter apparatus as in Claim 3 wherein the weave is a reverse Dutch weave configuration.

30 5. A filter apparatus as in Claim 1 wherein said securement means threadably engages with said connection means.

6. A filter apparatus as in Claim 1, including a flow distributing means disposed between said filtering means and said connection means, and superimposed over said second open end of said channel, such that chromatographic fluids 5 being drawn through said filtering means subsequently pass through respective apertures in said flow distributing means, and into said channel.

7. A filter apparatus as in Claim 6 wherein the apertures in said flow distributing means are spaced 10 thereacross over an area at least as large as the cross-sectional area of said channel at said second open end.

8. A filter apparatus for use in liquid chromatography systems, said filter apparatus comprising:

a housing having an upper end, a lower end, and an 15 open channel extending therebetween which channel is configured to operably receive fluid transfer tubing at least partially therein, said lower end having a recessed portion encompassing a first open end of the open channel corresponding to said lower end of said housing, said 20 recessed portion defining a perimeter protrusion portion extending at least partially therearound and downwardly from said lower end; and

a filtering means comprising a mesh element of between about 0.01 mm and about 1.0 mm in thickness and 25 being formed from a plurality of distinct monofilaments weaved together in a pattern defining a plurality of apertures of between about 5 and about 30  $\mu\text{m}$  in mean diameter, said filtering means having an outer dimension specifically sized so as to be operably press-fit into said 30 recessed portion of said housing with said filtering means being superimposed over said first open end of such channel, said filter apparatus thereby being adapted to operably

filter chromatographic fluids being drawn through the channel from said first open end and into the fluid transfer tubing.

9. A filter apparatus as in claim 8 wherein said 5 filtering means is fabricated from PEEK monofilaments.

10. A filter apparatus as in claim 8, including a flow distributing means disposed between said filtering means and said recessed portion of said housing, and superimposed over said first open end of said channels, such that 10 chromatographic fluids being drawn through said filtering means subsequently pass through respective apertures in said flow distributing means, and into said channel.

11. A filter apparatus as in claim 10 wherein the apertures in said flow distributing means are spaced 15 thereacross over an area at least as large as the cross-sectional area of said channel at said first open end.